

The present invention is directed to a method of using a pressure sensitive adhesive sheet that includes sticking the pressure sensitive adhesive sheet to a surface of an adherend that has a surface having a height difference of at least 30  $\mu\text{m}$  and working the adherend at its back while protecting the adherend surface by means of the pressure sensitive adhesive sheet. The pressure sensitive adhesive sheet includes a substrate and, superimposed thereon, a pressure sensitive adhesive layer. The substrate exhibits a maximum value of dynamic viscoelasticity,  $\tan \delta$ , of 0.78 to 1.61 at a temperature ranging from  $-5$  to  $80^{\circ}\text{C}$ .

Claims 5-8 stand rejected under 35 U.S.C.  $\S$  102(b) as allegedly being anticipated by, or in the alternative, under 35 U.S.C.  $\S$  103(a) as being obvious over, EP 0 798 355 to Nagamoto et al. (hereinafter "EP -355"). The Examiner contends that EP -355 discloses a pressure sensitive adhesive sheet that includes the adhesive layer and the urethane acrylate oligomer/polyene thiol resin substrate of Applicants' invention. While maintaining this stance, the Examiner indicates that the  $\tan \delta$  and Young's modulus properties are inherent properties or obviously optimized properties and, therefore, not novel. Applicants respectfully disagree.

Applicants again note that the cited European application to Nagamoto is owned by the same Assignee as the present application, namely, Lintec Corporation.

EP -355 discloses a base material for adhesive tape having a flat surface and "less thickness" than conventional materials. The base material has an adhesive layer formed thereon, which includes a radiation cured material which is prepared by curing a mixture of urethane acrylate oligomer and reactive dilute monomer. Such a material has a breaking elongation of more than 10%, preferably more than 100%. Applicants again respectfully note that EP -355 fails to disclose, teach, or in any way mention the dynamic viscosity property as claimed in the present invention. Further, EP -355 does not disclose that such a pressure sensitive adhesive sheet should be able to precisely follow the irregularities, due to bumps and the like, of an adhered wafer surface, enabling smooth back grinding of the adhered surface.

The Examiner indicates that Applicants have not provided comparative data against what the Examiner deems to be the closest prior art. Specifically, the Examiner's position has been that in order to overcome the rejection, comparative examples should be submitted showing a pressure sensitive adhesive layer coated on a photocurable resin backing comprising a urethane acrylate oligomer and a reactive monomer or photo polymerizable monomer, such as a dicyclopentanyl (meth)acrylate or a dicyclopentenyl (meth)acrylate. The Examiner has maintained that this is the closest disclosed prior art, and has been unwilling to withdraw the rejection without a conclusive showing that such a material is not inherently within the claimed  $\tan \delta$  range of 0.78 to 1.61.

Applicants submit herewith a Declaration Under 37 C.F.R. § 1.132 by Kouichi Nagamoto, one of the inventors in EP 0 798 355. The Declaration compares the substrate film of Examples 1-3 in the present specification with the substrate film made using dicyclopentanyl acrylate and dicyclopentenyl acrylate as suggested in EP -355. The data from the examples is shown in the table below.

	Urethane Acrylate Oligomer	Monomer	$\tan \delta$ (max. value at -5 to 80°C)
Example 1	Mw=5,000 (Arakawa)	Isobornyl acrylate	0.78
Example 2	Mw=5,000 (Arakawa)	Morpholinyl acrylate	0.85
Example 3	Mw=5,000 (Arakawa)	Isobornyl acrylate and Morpholinyl acrylate	1.18
Comparative Example 1	Mw=8,000 (Nippon Kayaku)	Dicyclopentanyl acrylate	0.599
Comparative Example 2	Mw=8,000 (Nippon Kayaku)	Dicyclopentenyl acrylate	0.315

Applicants have conducted the experiment that the Examiner has urged, comparing the dicyclopentanyl acrylate and dicyclopentenyl acrylate containing base sheet disclosed generally at page 3, lines 17-20 of EP -355. As the data show, the present substrate

(Examples 1-3) exhibits a maximum value of dynamic viscoelasticity,  $\tan \delta$ , of 0.78 to 1.61 at a temperature ranging from  $-5$  to  $80^{\circ}\text{C}$ , while the base materials disclosed by EP -355 (Comparative Examples 1 and 2) do not. Hence, the  $\tan \delta$  property is not inherent in the disclosure of EP -355 as the Examiner contends, and the present substrate film is not anticipated by or obvious over EP -355.

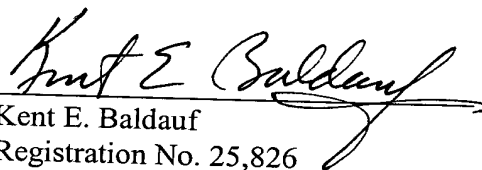
Accordingly, the rejection of claims 5-8 under 35 U.S.C. § 102(b) or under 35 U.S.C. § 103(a) should be withdrawn.

Further, in view of the foregoing remarks, it is believed that the present application is in condition for allowance. Reconsideration of the rejections and allowance of claims 5-8 are respectfully requested.

Respectfully submitted,

WEBB ZIESENHEIM LOGSDON  
ORKIN & HANSON, P.C.

By



Kent E. Baldauf  
Registration No. 25,826  
Attorney for Applicants  
700 Koppers Building  
436 Seventh Avenue  
Pittsburgh, PA 15219-1818  
Telephone No. 412.471.8815  
Facsimile No. 412.471.4094  
E-mail [webblaw@webblaw.com](mailto:webblaw@webblaw.com)